

WILMINGTON DISTRICT NEWS

SPRING 2017

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Civil engineer Joe Holm of the Wilmington District's U.S. Army Special Operations Command (USASOC) Resident Engineer Office at Fort Bragg manages projects of the U.S. Army John F. Kennedy Special Warfare Center and School.

The nature of warfare is continually changing. The U.S. Army is adapting to the changes, especially in the high-speed world of the special operations communities and the covert missions they perform.

At Fort Bragg, civil engineers of the U.S. Army Corps of Engineers Wilmington District's U.S. Army Special Operations Command (USASOC) Resident Engineer Office continue to manage the construction of state-of-the-

art facilities that are being built to accommodate the specific needs of the special operations community.

Resident Engineer Joe Holm manages projects of the U.S. Army John F. Kennedy Special Warfare Center and School. The operations tempo at Fort Bragg is set not only by the special operations communities, but also by the 82nd Airborne. This whirlwind tempo trickles down to the way he and other Wilmington District project managers keep their numerous projects on schedule and on budget.

"We're using technology to the fullest extent to manage the construction of the buildings," he said. "Everything is geotagged, photographs are connected to the drawings, they're all on tablets, and all of our inspections go out in real time to the subcontractors. It's amazing."

Holm said that the facilities are so high tech that the designers have to sometimes modify their plans into the

2017 Recreation Committee Events

MONTH	DATE(S)	EVENT
April	25	Bake Sale
April	3-28	Spring Clothing Sale
May	Due by May 3	Corps Day Shirt Design Competition
May	18	Dunker Day
June	9	Corps Day
July	13	Make Your Own Sundae
August	16	Salad 'Cook-off'
September	14	Sandwich Sale

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open to the public.*

U.S. Army Corps of Engineers
Wilmington District

Partnership Agreement Signed at North Carolina Agricultural and Technical College



Wilmington District Commander, Col. Kevin Landers, Sr., and North Carolina Agriculture and Technical State University Chancellor Dr. Harold Martin sign a STEM partnership agreement in Greensboro. (USACE photo by Hank Heusinkveld)

On January 31, officials from North Carolina Agricultural and Technical State University (N.C. A&T) and the U.S. Army Corps of Engineers (USACE), Wilmington District formally signed a partnership agreement for the encouragement and enhancement of studies in the Science, Technology, Engineering and Mathematics (STEM) initiative.

This partnership agreement between the Wilmington District and N.C. A&T was established to recognize the importance of STEM to the future political and economic well-being of the Nation, the importance of N.C. A&T to the business, industrial, and

governmental institutions in this region, as well as the overall USACE objective to attract a highly competent and diverse STEM workforce by increasing the diversity talent pool through the use of formal partnerships with Minority-Serving Institutions and/or Engineering Colleges and Universities.

"In particular, this agreement makes available to U.S. Army Corps of Engineers staff to assist in the development of STEM courses, and to teach special subjects within STEM," said Dr. Greg Williams, Wilmington District Chief of Engineering section. "In addition, this will provide students with real-world applications of STEM."

USASOC CON'T

future. Technology continually changes and USASOC leaders must occasionally reevaluate their specific needs. It's up to the project managers to ensure that those needs are met.

"Technology changes rapidly, but we've worked hard with them to review all of the changes and update the design to today's standards so that we're not building something that's already obsolete. Video teleconferencing equipment, for example, can be outdated within a year or two. It's a race to keep up with technology that meets all of their needs and keep the project on schedule at the same time."

Wilmington District USASOC Project Manager Jay Hershey echoes Holm's challenges of keeping up with technological advancements.

"The most difficult part of managing the projects is staying ahead of curve on the communications equipment," Hershey said. "These groups are communications heavy. If we have to make changes to the communications design or if the customer asks for a design change, it trickles down to power in the building such as HVAC. It changes all of that."

The facilities themselves are not only designed and built to meet specific training needs, but they're also designed and built for energy efficiency. The U.S. Army Corps of Engineers Army incorporates LEED or Leadership in Energy and Environmental Design into the USASOC projects. Hershey said that this saves the Army money on fuel and water expenses, and reduces greenhouse gas emissions.

"These buildings are energy efficient year-round. In the summer, the windows are designed to keep the heat out, and in winter they help capture additional heat from the sun. We also use solar panels for heating water and for keeping the buildings at a

constant, comfortable temperature."

As a project manager for USASOC for the past 10 years Hershey has established good relationships with USASOC leadership. He feels it's an honor to work for and with the "Green Berets" and this motivates him to keep in constant contact with USASOC leaders to address their concerns or to meet their demanding needs.

"They can do their jobs in a hut," he said. "But because of the nature of their missions and adapting their training for real world scenarios they're getting state of the art facilities that will keep them ahead of the game in the coming decades."



Artist rendering of the JFK Special Warfare Center and School campus at Fort Bragg.

USACE PARTNERS WITH NATURE CONSERVANCY TO ENHANCE LOWER ROANOKE RIVER



Chuck Peoples of The Nature Conservancy points to a section of a map detailing areas of the Lower Roanoke River for South Atlantic Division Commander Brig. Gen. David Turner and Jean Richter of the U.S. Fish and Wildlife Service. (USACE photos by Hank Heusinkveld)

In 2002, the U.S. Army Corps of Engineers (USACE) and The Nature Conservancy, formed a partnership and established the Sustainable Rivers Project (SRP). The SRP focuses on modifying water operations at USACE dams to enhance the habitat conditions for plants and animals who depend on downstream river flows.

SRP activities are occurring in eight river basins throughout the U.S., making it the largest coordinated effort of its kind in the world. Currently, the Roanoke River is one of the basins focusing on defining environmental strategies as part of a water management plan. At SRP sites, scientists gather data on the river flows and work with water managers to modify dam and reservoir operations within existing water control policies and manuals for each reservoir.

USACE reservoirs affect the timing and magnitude of river flows

to meet the competing needs of both human and environmental impacts. The reservoirs generate increased benefits by improving fish migration and water quality, flood damage reduction, and hydropower while also supporting navigation and recreation.

One of the largest and least disturbed Bottomland Forest Systems on the Atlantic Coast the lower Roanoke River floodplain is approximately 137 miles long, and up to five miles wide and additionally one of the largest and least disturbed Brown Water River Systems in North America. Furthermore, its 31 natural communities provide habitat for two federally listed animals, 16 state listed animals, 13 state listed plants, and 214 bird species, 88 known to nest including 44 neo-tropical

migrants and several heron rookeries. Also, the Roanoke has the most diverse and significant populations of migratory fish on the Atlantic Coast of the U.S.

The TNC Roanoke River Project started in 1982 with a donation from Union Camp Corporation of 176 acres of land. Since that time, TNC along with various partners have conserved approximately 95,000 acres along the river, its floodplain and in the surrounding watershed. The majority of these lands are managed in the public trust and or recreational use by the North Carolina Wildlife Resources Commission and the United States Fish and Wildlife Service. As the TNC Roanoke River project grew they reached out to other stakeholders.

"One of the things that led us to a successful outcome is everyone who is concerned with recreation on the river, came

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ROANOKE RIVER CON'T

together and said, 'We need to coordinate among ourselves in a more unified voice to USACE,' John Morris, former director of North Carolina Division of Water Resources said. "Starting in 2014 this stakeholder group really took hold and we had many meetings with USACE. We did some coordination with ourselves and gave USACE a more unified partner to work with as they were looking at different ways to improve the operation of Kerr Lake."

It became apparent that the USACE operation at Kerr would need to be modified. John H. Kerr Dam and Lake has been in place a long time – more than 50 years – and has played a pivotal role in the life of the Roanoke Valley.

"We have shaped our operations regime, as we usually do, to optimize the dams many authorized purposes and in accordance with prevailing conditions (flood, drought, etc.). But as we began our work with TNC and our state partner in North Carolina we could see that there were additional opportunities to enhance operations and improve conditions for the floodplain ecosystem," Col. Kevin P. Landers, Sr., USACE, Wilmington District Commander said.

"The Roanoke River begins in the mountains, comes through the Piedmont, and ends here on the coastal plains, and empties out into the sound. The coastal plain reach is the most significant part of the river because it's your typical alluvial flood plain. You have the levee, you have the swamp area, you have the high ridges, and you have the low ridges. The diversity that you're going to find here is just unbelievable," Jean Richter, biologist with the U.S. Fish and Wildlife Service said.

The floodplain on the lower Roanoke River is considered one of the largest intact and least disturbed bottomland forest ecosystems remaining in the mid-Atlantic region. The unique thing about this river is the floodplain is still very active because there's not a lot of development. We have a pretty intact floodplain as far as the forest goes. So you're going to have a forest in all stages of growth. Some cutting has occurred so you're going to have early forests, and you'll have nice mature hardwood forests, and then you're going to have areas in between," Richter said.

A change at any USACE dam requires a 216 study, and through modeling and review of historic river flows USACE came up with

an alternative that more closely mimics the natural variations of the river. This alternative, known as QRR, or quasi-run-of-river, is the operational paradigm for releases out of Kerr Lake today.

"Working with USACE, we came up with an optimal solution where the plan kicks in only when Kerr Reservoir is in flood control operations and it allows USACE the flexibility to send a bit more water downstream, but within the way the dam was designed to operate. So USACE is able to maintain its flood control operations and the river gets the sustaining flows that it needs at the same time," Chuck Peoples, the director of conservation, North Carolina Chapter of Nature



Kevin Dedad of the John H. Kerr Dam and Reservoir powerhouse helps navigate down a tributary of the Lower Roanoke River just east of the dam.

ROANOKE RIVER CON'T



Jean Richter of the N.C. Fish and Wildlife Service, right, explains to SAD Commander Brig. Gen. David Turner, left, and Wilmington District Commander Col. Kevin Landers the ecosystems of the bottomland forests along the Lower Roanoke River near Plymouth.

Conservancy said.

"A 35,000 cubic feet per second (cfs) flow, which is the maximum flow that you can release under QRR, flows through this forest and it's quickly gone. Flows of significantly less than 20,000, say in the neighborhood of 11,000 cfs, don't make it over the levees so they stay in the river. However flows around 20,000 cfs flood the forest and as the water continuously sits there it gradually loses all of its oxygen. Additionally the temperature goes up and it becomes more acidic and the trees gradually die along with many other things dying simultaneously; all of the box turtles that couldn't move away, the lizards and the salamanders, the ground nesting birds such as wild turkeys. Even the wasps that control the forested caterpillar populations and they all have ground stages and they all get killed when water sits at 20,000 cfs for a long time," Sam Pearsall, member of board of science advisers, Roanoke River Basin Association, and the former director of science, Nature Conservancy said.

QRR will significantly reduce the frequency and severity of bank collapse, preventing further degradation of fish and aquatic habitat and reducing the rate of shoreline land loss.

"The concern we have with erosion is the banks become vertical. When you have vertical banks there are actually bird species using the banks for forage and they can't use those banks

or use a vertical bank. When the river is at flood stage they can actually use the vegetation along the banks as refuge. But if you have a vertical bank with no vegetation, they have no place to go to. So what happens is the river starts looking like a bathtub; banks with no vegetation and wildlife can't use it anymore. That's why we're trying to preserve what we have left with the vegetation on the banks so the wildlife can continue to use it, aquatic life in the river can use it as refuge to escape from predators and as feeding areas, too, and nursery areas," Richter said.

"You can't find forests like you find in the Roanoke River basin across the United States like you perhaps could a hundred years ago. I think it's important for us as a nation to make sure that we're being good stewards of our environment that we live around," Landers said.

Landers further elaborated, "We have to try and strike a balance that both meets our project's intent, but also incorporating into that solution, the environment, and the needs of the stakeholders. There's a whole myriad of different angles that have to be looked at and addressed in coming up with the optimum solution. Sometimes we don't ever reach the optimum solution, but at the end of the day we're definitely trying to strike a balance among the stakeholders by collaborating and understanding their needs."

DISTRICT ENGINEERS GIVE INSIGHT ABOUT THEIR PROFESSION DURING ENGINEERS WEEK

Engineers Week 2017 is celebrated every year to recognize how engineers make a difference in our world, to increase public dialogue about the need for engineers, and to bring engineering to life for kids, educators, and parents.

Each year, Wilmington District engineers get involved with various schools in the Wilmington area to give students and pupils a realistic explanation about what it takes to become an engineer. And in local media, civil engineer Tamara Carter Murphy went live on WWAY TV's Good Morning Carolina to explain the significance of Engineers Week, and how parents and teachers can help steer those students and pupils who have the aptitude for math and science to explore a possible career in engineering. The following two interviews help explain why to of our colleagues chose their profession and what they encourage parents and teachers to do to help a budding engineer.

Dr. Greg Williams, Chief of Engineering

Why did you become an engineer?



I became an engineer because I wanted to solve problems. I enjoyed math and science in high school. I really wasn't the best math student, but I enjoyed science and I enjoyed physics, I enjoyed applied math and then realized that I could use that to address problems.

How do engineers use math and science to solve problems?

Wrightsville Beach is a good example with this coastal storm damage reduction project. We use math and science to understand the volume of sand that has to be placed on the beach, how often it has to be put on, where the sand comes from, and the composition of the sand.

All that goes with how compatible it is with the beach and its ultimate purpose to provide storm damage reduction. You have to understand the waves and storms that impact the beach.

Who inspired you to become an engineer?

I really didn't know what an engineer was when I was in high school. I had to learn to figure it out on my own. I had really good math and science teachers that taught the material in a way that made it enjoyable. So I liked going to class and all the best classes that I ever had in high

ENGINEERS WEEK CON'T

school all the way through grad school were really a direct reflection on the teachers and their enthusiasm for the subject, even if it was something that I wasn't really particularly fond of, the teacher that loved the material and that was passionate about the subject it made me like the subject. My parents are absolutely, fundamentally influential. The teachers and their passion for the subjects and making it interesting are what got me through. If it hadn't been for them I wouldn't be here.

What can parents or guardians do to encourage kids with aptitudes for math and science to consider a career in engineering?

You know, the question you have to ask sometimes is 'Do you want to contribute to the better of society?' You have to encourage them and there are lots of ways you can do that. I sit down with my kids and ask them what their day was like. I ask them to tell me what they're studying and then I'll go over it with them. I make myself available to answer questions. And sometimes I can't answer the questions, but at least I'm engaged with their lives. We get tutors for them. I think parents can make schedules and arrangements for kids to go to tutoring after school or during weekends. Find those tutors to encourage kids and not

allow them to get discouraged and say to themselves that it's okay to give up.

Leslie Bowles-Early, Cost Engineer

Why did you become an engineer?

Bowles-Early: Growing up, my family and I would visit New York City often and I was always fascinated with the infrastructure it offered. I especially enjoyed driving across the George Washington Bridge into the Henry Hudson Parkway and seeing the grand structure of the High Bridge and the "street steps" along the way, next to a busy river. Those structures always captivated me – and still do, to this very day!

Math was always my favorite subject growing up and I knew from an early age that I wanted to do something in that capacity. I was happy to learn that the engineering field would allow me to combine my fascination with structures and love of math in one discipline.

At what age did you know that you were good at math and science, and did you pursue higher levels of math and science through high school?

Bowles-Early: When I was in eighth grade, I began to truly enjoy and appreciate math and



Leslie Bowles-Early: "Math was always my favorite subject growing up and I knew from an early age that I wanted to do something in that capacity. "

science and wanted to learn more. I sought out higher levels of both subjects academically and would pursue activities that encouraged them.

What do engineers do for society?

Bowles-Early: I believe that engineers "keep everything going" – from the roads we drive on, the bridges we cross, to the plumbing in our homes, and the cell phones we communicate with. These great inventions are all possible because of, and stem from, engineering. We provide

ENGINEERS WEEK CON'T



Tamara Carter Murphy was a guest on WWAY TV's Good Morning Carolina to discuss Engineers Week with host Randy Aldridge.

the foundation of the day-to-day technology and infrastructure we now take for granted – yet can't live without! I am really proud to work in a field that positively and regularly contributes to society in an on-going basis.

Did your family help motivate you to become an engineer? Do you advise parents of children with aptitudes for upper level math and science to pursue a potential degree in engineering?

Bowles-Early: Absolutely and unequivocally! My family was

very supportive in my pursuit of engineering at an early age. My father, in particular, motivated me and gave me the drive to further explore and excel in mathematics and science. He worked as a scientist when I was very young and I would say that this influence, and his passion for chemistry in particular, rubbed off on me. I hope to encourage and influence my young daughters with my passion for engineering. I believe we, as

parents, owe it to our children, and today's youth, to introduce them to (and get them excited about) the multi-faceted, influential, and earth-friendly field known as engineering.

**For more information about
Engineers Week go to
www.discovere.org**

2017 OBSERVANCES OF BLACK HISTORY MONTH AND WOMEN'S HISTORY MONTH



Dr. Anthony Graham

Dr. Anthony Graham, *Dean of Education at North Carolina A&T State University*, and Malik Gordon, an *8th Grade Student at D.C. Virgo Preparatory Academy*, were the guest speakers for the MLK-BHM event. Wilmington District was inspired by Malik's personal experiences and educational aspirations as well as challenged by Dr. Graham's enlightening statistical, motivational presentation as to why education is so important for minority groups throughout the United States.

The Wilmington District celebrated Women's History Month with a focus on the theme, "Honoring Trailblazing Women in Labor and Business", guest presenter Jenny Owens, SAW-Chief of Environmental Resources Section. Her interesting, motivational presentation focused on "Be Careful What You Wish For", provided an overview of challenges and experiences as she blazed the path for her career from GS-2 to GS-13 in a stereotypical male-dominated position. In addition, selected by supervisors and co-workers, several women were recognized for their outstanding contributions, selfless



service, and positive teambuilding approach within the workforce. The event was most inspiring and encouraging.

HIGH SCHOOL STUDENTS HOPEFUL FOR RETURN OF CHESTNUT TREES AT W. KERR SCOTT RESERVOIR

Agriculture and Future Farmers of America (FFA) students at West Wilkes High School in Millers Creek, North Carolina are doing their part to help bring back the American chestnut tree which was wiped out by a fungus in the beginning of the 20th century.

Agriculture teacher and FFA coordinator Jacob Shepherd said that after two years of speaking with officials from The American Chestnut Foundation, the Wilmington District's W. Kerr Scott Dam and Reservoir, W. Kerr Scott Friends of the Lake and Appalachian State University, land was set aside on U.S. Army Corps of Engineers game lands to grow the trees. The students planted roughly 650 trees and will closely monitor them over the years.

"The school agreed to provide 20 students who were interested in either horticulture or agriculture," Shepherd said.



District Commander Col. Kevin Landers chats with teacher Jacob Shepherd and his students after the planting of roughly 650 American Chestnut trees.

"We studied the plight of the chestnut trees, how they died. So, the goal was to put some meaning behind what they were volunteering to do. We learned how big the industry was before the blight."

According to the American Chestnut Foundation, a fungal pathogen was responsible for the chestnut blight that was accidentally imported into the

U.S. from Asia. It was first detected in New York in 1904, and spread rapidly throughout the eastern forests. By 1950, the fungus had eliminated the American chestnut as a mature forest tree. The tree was an essential component of the entire eastern U.S. ecosystem. It was the single most important food source for a wide variety of wildlife from bears to birds.

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CHESTNUT TREES CON'T

Rural communities depended upon the annual nut harvest as a cash crop to feed livestock. In addition, the chestnut lumber industry was a major sector of rural economies.

Shepherd said the planting program was modeled by the American Chestnut Foundation. Students will initially monitor the trees for two years to see

how they fare.

“The trees will fight for nutrients against the grasses that are also in the field where one batch is planted. We also planted two sections in the woods. We had to cut down other trees to let in light from a reduced canopy for better growing conditions.”

Shepherd said that in another four years students will go back to check on all of the trees to see how they’re doing.

“It’ll be a multi-year process that will be monitored by several different age groups and senior classes.”

Image courtesy American Chestnut Foundation



DISTRICT ENGINEERS AND SCIENTISTS VOLUNTEER AT ROCAME JAMBOREE

ROCAME, Region

"O" Council for the Advancement of Minorities in Engineering, held its annual jamboree on the grounds of Cape Fear Community College on Saturday, April 1st. Wilmington District civil engineers Tamara Carter Murphy and Austin Balser, engineer technician Oweita Freeman and biologist Justin Bashaw volunteered their time to assist with the program's platform that fosters teamwork, public speaking, math skills, science skills, circuit knowledge, architecture, programming, communication, chemistry concepts, research and presentation skills and robotics. Coordinator Murphy explains her involvement with the organization:

"I've been attending the ROCAME Jamboree for almost 20 years, starting in middle school at age 11. I enjoyed competing while I was in school, but love staying involved with the program as an adult. There's something about watching the camaraderie and spirit of competition amongst the students that motivates me to continue volunteering. The events (Egg Drop, Write It/Do



District volunteers are from right to left: biologist Justin Bashaw, civil engineer Austin Balser, civil engineer Tamara Carter Murphy, and engineer technician Oweita Freeman.

It, Pentathlon, Robotics, Oratory, etc.) are interesting, thought provoking, and a joy to watch. The Quiz Bowl has long been a favorite of mine to watch, just to see how many math and science trivia answers I can recall or calculate correctly. I look forward every year to seeing the students' attempts at the challenges the Jamboree presents and watching them learn on a Saturday morning outside of the classroom. The Jamboree allows time for me to educate casually without any pressure and to show the students that one of the previous ROCAME students is now an engineer (if I did it, you can too). I love speaking with them

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ROCAME CON'T

about the importance of education, attending college (engineering or not), the various disciplines of engineering, career opportunities in engineering, and recent engineering projects. We usually see a great turnout from the surrounding counties, but my next challenge is to figure out how to get more kids involved from New Hanover County schools. Brunswick County has started holding a mini-Jamboree to practice in anticipation of the Regional Jamboree. I believe this program is making and has made great strides in introducing more students to engineering and recruiting young engineers to help with our future challenges and I look forward to volunteering for the years to come.”

For more information go to
www.rocame.org



Top photo- A student drops an egg in a modified case that is designed to withstand impacts from varying elevations. This is one of several challenges that develop solutions to problems that engineers must face.

Left photo- Retired Wilmington District civil engineer and project manager Tony Carter poses with daughter Tamara. Both father and daughter have been instrumental over the years in developing ROCAME.



W. KERR SCOTT HOST WORLD-CLASS MOUNTAIN BIKE RACE



A rider goes airborne at one stretch of the race . (File photos by Hank Heusinkveld)

More than 300 riders participated in the Six Hours of Warrior Creek mountain bike race on the grounds of the Wilmington District's W. Kerr Scott Dam and Reservoir in Wilkesboro. Rated as "Epic" by the Boulder, Colorado-based International Mountain Bike Association, the trail system offers professional and experienced mountain bikers a challenging ride with breathtaking beauty.

"In the foothills of Western North Carolina we've got some nice rolling hills and that just makes for some world class mountain

biking," said W. Kerr Scott Ranger Scott Graham. "Along with the topography you have the rolling hills, all kinds of natural obstacles like boulders, rocks, roots, and trees all around. So you have a beautiful natural setting that really lends itself to some fun and exciting mountain biking."

Mountain bike enthusiasts like to use the term "flow" when describing a trail like Warrior Creek. There are numerous areas where they can meander down sloped grades with minimal effort, or huff and puff their way up steep inclines. The big draw of the Warrior Creek Trail is not only spectacular scenery, but a trail system that offers professionally-built berms, hard packed trails and natural obstacles like strategically placed rocks.

Jim Horton of the Brushy Mountain Cyclist Club in Wilkesboro designed the trail. A mountain biker himself, he knows exactly what makes a good ride.

"When I'm building a trail I'm thinking about making a trail that's fun for me to ride," he explained. "It's just lucky that everyone else enjoys the same thing so it works out well."

Horton said that professional and advanced riders keep returning to Warrior Creek because of the key ingredients that make up the trail. It tests their competitiveness through endurance, and more importantly their skills.

"We have some good examples of some of the more technical features for a rider to enjoy like a section called the Rock Garden. I like to give them a little bit of everything. We've got fun, flow, berms, and a smooth, single-track trail that seems endless. And we've got certain small sections of the trail that zigzag like a roller coaster ride. They can also enjoy views of the lake and mountains around them."

The partnership between the U.S. Army Corps of Engineers, the Brushy Mountain Cyclist Club and other volunteer groups have made excellent use of the public lands at W. Kerr Scott. Volunteers regularly maintain the trail system and keep aesthetics in mind when

MOUNTAIN BIKE CON'T

they tend to it.

"That's one of the things that the U.S. Army Corps of Engineers has really liked with the Brushy Mountain Cyclist Club, the work that they've done, because sustainability and keeping the land 'as is' is very important to us," said Graham. "And if you go on these trails a lot of times you will not even notice them because they blend in so well with the land itself. They're like a natural part of the existing land. Another thing is sustainability. These trails are meant to weather all kinds of people riding them as well as impacts from the elements.

So when we get a big thunderstorm, for example, the next day the trails have drained, have dried, and there's no sedimentation in the water sources."

Although W. Kerr Scott is gaining a reputation as a mountain bike mecca in Western North Carolina, U.S. Army Corps of Engineers park rangers encourage the public to take advantage of other recreational opportunities.

"Absolutely. This is a great place for families. We've got camping, excellent fishing, boating opportunities, and of course the great mountain biking trails," Graham said. "And one thing about our mountain bike trails, these are multi-purpose trails. So you can get out there on your bike, go take a hike, go bird watching. These trails are for everybody. You don't have to have a mountain bike to come enjoy these trails."



Riders come from as far away as Washington, D.C. to attend the race.

Graham said that applies to all of the trails at W. Kerr Scott. Although the Warrior Creek Trail draws the bulk of attention because of its popularity with experienced mountain bike riders there are two other trails for novices.

"We have three trail systems with more than 30 miles of trails. You have the Dark Mountain trail system, the Overmountain Victory Trail, as well as the Warrior Creek trail system. If you ride these trails you will see the progression the Brushy Mountain Cyclist Club has made in their building skills. When you ride from one trail to the other you can see that their skill level has increased in the finesse of the trail, and the surrounding land becomes more apparent. The club is said to have milked it for everything it's worth. They have been taking the land that is here and really just maximized the riding opportunities on them."